

Application No.: 10/712,635
Amendment Dated: December 7, 2006
Reply to Office Action of: September 12, 2006

SNK-3750US5

Remarks/Arguments:

Applicants' disclosure is directed to a laser apparatus. The laser apparatus includes a laser light source and a bulk type optical wavelength converter. A single mode fiber connects the laser light source and the optical wavelength converter such that the single mode fiber conveys laser light from the laser light source to the optical wavelength converter. The fiber is configured to prevent a variation in temperature of the optical wavelength conversion element

Claims 78, 80, 87 and 89 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Asami et al. (U.S. Patent Number 5,415,978) in view of Gupta (U.S. Patent Number 5,682,398). Claims 81 and 90 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Asami et al. (U.S. Patent Number 5,415,978) in view of Gupta (U.S. Patent Number 5,682,398) and further in view of Nitta (U.S. Patent Number 5,590,145). Claims 93 and 97 have been objected to as being dependent upon a rejected based claim. It is respectfully submitted, however, that the claims are now patentable over the cited art for the reasons set forth below.

Asami discloses a semiconductor laser 102 and a KTP crystal 110. According to Asami, output from the semiconductor laser 102 is propagated through a lens 104 to the KTP crystal 110.

Gupta discloses locking the wavelength of a semiconductor laser (see col. 2, lines 48-59). Further, Gupta discloses, in Fig. 1, an optical fiber 20 disposed between a frequency doubled crystal 22 and a laser 12. According to Gupta, the optical fiber 20 is used to convey the output of the laser 12 so as to reduce, as much as possible, the variation in the frequency of the output of the laser 12 (See column 3, lines 4-10).

Applicants' invention, as recited by claim 78, includes features which are neither disclosed nor suggested by the art of record, namely:

...a bulk type optical wavelength conversion element for generating a harmonic wave based on the laser light...

...a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength conversion element...

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...the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser... (Emphasis Added).

This feature is found in the originally filed application at page 52, lines 27-28 and page 54, lines 14-15 (bulk type optical wavelength conversion element); and page 55, lines 15-19 and page 57, lines 14-16 (fiber configured to prevent a variation in temperature of the optical wavelength conversion element). No new matter has been added.

With regard to Asami, Asami is silent regarding a bulk type optical wavelength conversion element. Further, Asami uses a lens 104 to propagate the output from the semiconductor laser 102 to the KTP crystal 110. Asami does not disclose or suggest a fiber disposed between the KTP crystal 110 and the semiconductor laser 102.

With regard to Gupta, Gupta does not disclose or suggest a bulk type optical wavelength conversion element. Further, Gupta does not disclose that optical fiber 20 is constructed to prevent the variation in temperature of the optical wavelength conversion element.

This is different because Applicant discloses use of a bulk type optical wavelength conversion element as well as a single mode fiber configured to prevent a variation in temperature of the optical wavelength conversion element. Neither Asami nor Gupta nor any combination thereof disclose these features.

It is because Applicants' include the feature of ...a bulk type optical wavelength conversion element for generating a harmonic wave based on the laser light...a single mode fiber for conveying laser light from the semiconductor laser to the optical wavelength to the optical wavelength conversion element...the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser, that the following advantages are achieved. Namely, it prevents variation in temperature of the optical wavelength conversion element.

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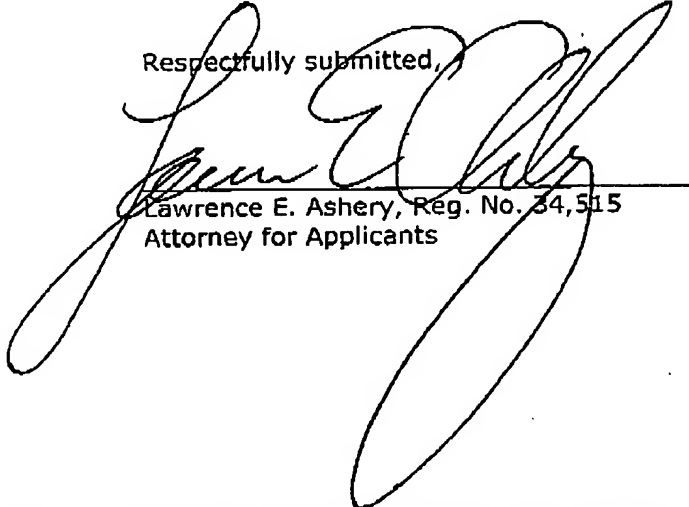
Accordingly, for the reasons set forth above, claim 78 is patentable over the art of record.

Claim 87, while not identical to claim 78, includes features similar to claim 78. Accordingly, claim 87 is also patentable over the art for the reasons set forth above.

Claims 80-81 and 89-90 include all the features of claim 78 from which they depend. Thus, claims 80-81 and 89-90 are also patentable over the art of record for the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,


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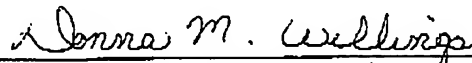
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